

## DEPARTMENT OF ECOLOGY

July 5, 2012

TO: John Price, NWP

FROM: Arthur Buchan, TCP

SUBJECT: Spatial Scale for Applying Table 749-3 Values

The purpose of this memorandum is to summarize the results of previous discussions regarding the spatial scale of what would be considered a "site" at the Hanford Nuclear Reservation. The specific discussion points were the application of Ecological Indicator Soil Concentrations (screening values) found in Table 749-3 of the Model Toxics Control Act (MTCA), and the determination of specific locations within the predetermined site where confirmational sampling should take place.

The MTCA definition of "site" is the same as the MTCA definition of "facility." "Facility" is defined as "any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, vessel, or aircraft; or any site or area where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed of, or placed, or otherwise come to be located."

Presently, there are interim action plans and a consent order in place for the Hanford Nuclear Reservation. The interim action plan spatially separates the area of contamination (which we established as the site) into "operable units" (OU), each of which is then further separated into individual areas of concern, which are known as "solid waste management units" (SWMU). Each OU encompasses approximately 10 to 30 square miles and includes approximately 75 to 100 SWMUs. The consent order states that "Due to the relatively large number of [SWMUs] at the Hanford Site, a process has been established for organizing these units into groups called operable units. The concept of operable units is to group the numerous units (primarily by geographic area) into manageable components for investigation and response action and to prioritize the cleanup work to be done at the Site." Therefore, the "site" at the Hanford Nuclear Reservation should be considered those OU's as described in the consent order. The operable units are used as the "Site Name" as found on the MTCA Hazardous Sites List as required by WAC 173-340-330.

Under WAC 173-340-740 (7) (Compliance Monitoring), "...Sampling and analytical procedures shall be defined in a compliance monitoring plan prepared under WAC 173-340-410. The sample design shall provide data that are representative of the area where exposure to hazardous substances may occur." In addition, WAC 173-340-430 (2) (Interim Actions), "Interim actions may: [(a) Achieve cleanup standards for a portion of the site]. As a result, it appears that sampling should take place in those areas where exposure to hazardous substances is likely to occur within an operable unit, and only those locations (as noted) should be included in either direct comparison or statistical analysis for confirmational purposes.

Confirmational sampling within an OU will consist of bottom-of-excavation and sidewall sampling and at any additional locations where contamination is suspected. The data set produced from confirmational sampling shall be evaluated with either direct comparison or statistical methods to determine compliance with cleanup levels. If statistical methods have been chosen, the 95% UCL of the confirmational sampling data set shall be calculated (as per WAC 173-340-740(7)), and then compared to WAC 173-340 (Table 749-3) to determine compliance. Furthermore, it shall be verified that “no single sample concentration shall be greater than two times the soil cleanup level,” and “less than ten percent of the sample concentrations shall exceed the soil cleanup level” for the data set within an OU. Additional sampling techniques including both judgmental and probabilistic (i.e. grid or simple random sampling) should be agreed upon by both the Ecology Site Manager and Consultant or Potential Liable Party (PLP) prior to submission of a sampling and analysis plan as required under WAC 173-340-820.

Should you have any questions, please feel free to contact me at (360) 407-7146 or [Arthur.buchan@ecy.wa.gov](mailto:Arthur.buchan@ecy.wa.gov).

Cc: Damon Delistraty, NWP